

Fact Sheet  
December 20, 2011

City of Angola Wastewater Treatment Plant  
located at 1095 Redding Road  
Angola, Indiana  
Steuben County

<u>Outfall Location</u>	Latitude:	41° 37' 38" N
	Longitude:	84° 58' 59" W

NPDES Permit No. IN0021296

**Background**

This Fact Sheet provides the basis for the modification of the NPDES permit for the City of Angola Wastewater Treatment Plant (WWTP) to incorporate the provisions of a variance from the water quality standard for chloride under the procedures of 327 IAC 5-3-4.1. The modification includes the incorporation of a chloride pollutant minimization program plan (PMPP), and interim and variance chloride limitations. Additionally, a reopener clause allowing modifications to the variance based on revisions by the Water pollution Control Board or by the EPA, and a compliance schedule for the variance, have been added to the permit.

The facility's current permit was effective on November 1, 2009 and has an expiration date of October 31, 2014. The City of Angola operates the City of Angola WWTP, a Class III, 1.7 MGD conventional activated sludge treatment facility that discharges treated sanitary, industrial and combined sewer wastewater. The discharge from the City of Angola WWTP is to H. D. Wood Ditch which flows to Mud Creek to Pigeon Creek. H. D. Wood Ditch is located within the Great Lakes system and has a  $Q_{7,10}$  low flow value of 0.0 cfs.

On April 30, 2010, the City of Angola submitted an application for variance from the water quality standard for chloride. The water quality standard for chloride was utilized to establish water quality-based effluent limitations (WQBELs) for chloride which were incorporated into the applicant's November 1, 2009 permit renewal. The application for variance was public noticed from May 17, 2010 through June 17, 2010 under Public Notice No. 2010-5C-VA. Based on comments received during the public notice period, a Public Hearing was held on October 5, 2010. Based on a review of the application and comments received from the U.S. EPA and the public, IDEM requested additional information to supplement the application. The City of Angola submitted the additional information on February 11, 2011.

A variance provides for relaxed effluent limitations in situations where compliance with a WQBEL will result in an undue hardship or burden (327 IAC 5-3-4.1(e)), and result in substantial and widespread economic and social impact (Paragraph C.1 of Procedure 2 in Appendix F of 40 CFR Part 132) on the applicant. While conventional wastewater treatment technologies utilized by municipal WWTPs are designed to remove the majority of pollutants in the wastestream, they are not effective at removing chloride. Treatment technologies that are effective at chloride removal are generally cost-prohibitive and result in concentrated brine for which disposal can be problematic.

Indiana's variance application requirements and variance procedures are outlined in 327 IAC 5-3-4.1. 327 IAC 2-1.5-17 outlines the criteria IDEM evaluates when making a variance determination for dischargers to the Great Lakes system. Additionally, IC 13-14-8-9 includes a requirement for a pollutant minimization plan specific to the pollutant for which a variance is requested in the application. This statute also requires compliance with federal GLI variance regulations in 40 CFR 132, Appendix F, Procedure 2.C. These federal regulations outline the federal conditions to grant a variance.

### **Variance Application**

Under 327 IAC 5-3-4.1(b)(2), the City of Angola identified three groups of control methodologies specific to the reduction of chloride in the effluent of the WWTP. The city also noted that there are no other municipalities that are known to have implemented any of the identified control methodologies to achieve a level of control greater than the level currently achieved by the city's wastewater treatment plant. The three groups of control methodologies include source control (pollutant minimization), improvements for continued discharge to H.D. Woods Ditch (stream flow augmentation, effluent dilution, sidestream treatment), and improvements for changing the discharge to Pigeon Creek (alternate mixing zone).

Under 327 IAC 5-3-4.1(b)(2)(A)(ii), the City of Angola identified effluent dilution, stream flow augmentation and discharge to Pigeon Creek as those control methodologies determined to not be technically feasible. Effluent dilution was identified as "not technically feasible" because while this methodology would reduce effluent concentrations of chloride, it would not affect the mass of chloride discharged (mass limits are required in the NPDES permit under 327 IAC 5-2-11.6(g)). Stream flow augmentation was identified as "not technically feasible" due to, among other issues, flooding concerns the increased flow would cause to H.D. Woods Ditch and Mud Creek. Changing the discharge to Pigeon Creek (which has a higher flow than H.D. Woods Ditch) was identified as "not technically feasible" because it would not result in significantly higher effluent limitations for chloride.

The remaining (technically feasible) control methodologies identified in the application are side stream treatment (treatment of WWTP effluent by reverse osmosis) and source control in the form of the pollutant minimization program plan (PMPP) required under IC 13-14-8-9(b). Under the ranking of feasible methodologies required by 327 IAC 5-3-4.1(b)(2)(A)(iii), side stream treatment was ranked ahead of source control in terms of control effectiveness. The City of Angola provided information regarding the environmental and economic impacts resulting from each feasible methodology as required by rule.

### **Public Hearing**

On October 5, 2010, a Public Hearing was held in Angola, Indiana to provide information on the variance application and to solicit comment from interested parties. A summary of comments received during the hearing, and IDEM's responses to those comments, is appended at the end of this Fact Sheet.

### **Variance Determination**

Based on a review of all relevant information, IDEM has determined the variance application to be complete and has made a determination on the variance in accordance with 327 IAC 5-3-4.1(e). IDEM has determined that the highest ranking methodology, side stream treatment, would result in an undue hardship or burden upon the City of Angola when evaluated under the factors outlined in 327 IAC 2-1.5-17(c)(1). This determination is based primarily on the estimated costs of the construction, operation, maintenance, and disposal associated with reverse osmosis. These costs translate to a monthly cost increase to residential users of \$31.50, resulting in an overall monthly charge for wastewater treatment of \$88.92 per residential user. In balancing the increased risk to human health and the environment against the hardship or burden upon the City of Angola if the variance is not granted, IDEM considered the following environmental factors:

- The discharge of chloride at current levels is not a threat to human health (there are no downstream drinking water intakes);
- The discharge of chloride at current levels is not likely to jeopardize the continued existence of any endangered or threatened species; and
- The area affected by the variance is limited to H. D. Wood Ditch and Mud Creek (approximately three stream miles from outfall to confluence with Pigeon Creek), as in-stream sampling indicates that chloride concentrations in Pigeon Creek do not exceed the water quality criteria;

Considering the factors outlined in 327 IAC 2-1.5-17(c)(1), however, IDEM determined that source control will not result in an undue hardship or burden upon the City of Angola. As a result, source control, in the form of a chloride PMPP, has been incorporated into the City of Angola's NPDES permit modification.

### **Chloride Pollutant Minimization Program Plan (PMPP)**

The City of Angola identified the major source of chloride to the WWTP as softener waste from the City's North and Mill Street water plants. Other identified chloride sources with potential for reduction include industrial wastewater, residential water softener waste, and deicing runoff.

The permit has been modified to incorporate a PMPP for chloride. The PMPP requires the City of Angola to continue to monitor the sources of chloride to the WWTP, develop and implement a chloride public awareness program, implement a program of water treatment plant process optimization, and develop and implement a non-residential users program designed to address chloride reductions to the WWTP. Additionally, the PMPP requires the City of Angola to submit a chloride variance annual report updating the progress made in chloride source identification and reduction during the previous twelve month period, as well as an investigation of treatment technologies, process changes, and other techniques which may result in further progress toward attainment of the WQBELs for chloride.

### **Variance-Based Chloride Limitations**

In addition to the water quality-based effluent limitations (WQBELs) for chloride required under 327 IAC 5-3-4.1(i)(1), the permit modification incorporates the interim limitations for chloride required under 327 IAC 5-3-4.1(i)(3) and 40 CFR 132 App F, Procedure 2.F.1. The interim limitations represent the level currently achievable (LCA), prior to implementation of the chloride PMPP. The daily maximum interim limitation was calculated as the product of a long term average (LTA) and a daily variability factor. The LTA represents the mean of the lognormal distribution of chloride values from April 2008 through March 2011, while the daily variability factor represents the ratio of the 99<sup>th</sup> percentile of daily chloride values divided by the mean distribution. The monthly average interim limitation was calculated as the product of the LTA and a monthly variability factor. The monthly variability factor represents the 95<sup>th</sup> percentile of the monthly average of daily chloride values divided by the mean of the monthly averages. This method of effluent limitation development, consistent with EPA's Federal Effluent Limitation Guideline statistical approach, accounts for the statistical variability in the historical effluent data for chloride from the City of Angola WWTP.

The resulting interim limitations for chloride are 1,089 mg/l (15,449 lbs/day) as a daily maximum and 792 mg/l (11,236 lbs/day) as a monthly average. Monitoring for the interim limitation is to be conducted one time weekly by 24-hour composite sampling. Permit compliance will be based on compliance with the interim limitations for chloride for the time period beginning with the effective date of the permit modification that incorporates the chloride variance, and lasting until 24 months from the effective date of the permit modification.

The permit modification also includes the variance limitations for chloride, representing the maximum amount of progress of chloride reduction feasible during the initial term of the variance as required under 327 IAC 5-3-4.1(i)(2). The variance limitations are based on the interim limitations calculated to reflect a 3% reduction of the LCA ( $LCA - (LCA * 0.03)$ ) the reduction in chloride expected during the first term of the variance. The variance limitations for chloride are 1,056 mg/l (14,981 lbs/day) as a daily maximum and 768 mg/l (10,895 lbs/day) as a monthly average. Monitoring for the variance limitation is to be conducted one time weekly by 24-hour composite sampling. During the period beginning 24 months from the effective date of the 2011 permit modification, permit compliance will be based on compliance with the variance limitation for chloride.

### **Other Requirements**

Part I.C of the permit modification includes a reopener clause allowing amendments to the variance based on revisions made by the Water Pollution Control Board during the next revision of water quality standards or by EPA upon review of the variance. Additionally, Part I.E of the permit modification includes a compliance schedule in which the City of Angola is required to complete actions required by the PMPP and to achieve compliance with the variance limitations.

### **Variance Renewal**

The City of Angola may apply for a renewal of the variance from the water quality standard for chloride in accordance with 327 IAC 5-3-4.1(k). Submittal of the renewal application is subject to the timelines for variance application submittal under 327 IAC 5-3-4.1(b)(1).

### **Permit Modification**

The following changes have been made for the modification of the NPDES permit:

Page 1 of 58	This page has been modified to reflect the modification effective date for the permit.
Page 5 of 58	This page has been modified to incorporate the interim limitations and variance limitations for chloride into Table 4.
Page 6 of 58	This page has been modified to incorporate footnotes [5] and [6] into Table 4. Footnote [5] addresses the schedule of compliance for the requirements associated with the Chloride Variance in Part I.E, and footnote [6] addresses the inclusion of chloride WQBELs in the permit.
Page 6a of 58	This page has been modified to incorporate footnotes [7] and [8] into Table 4. Footnote [7] addresses the applicability of the interim limitations, while footnote [8] addresses the applicability of the variance limitations.

Page 13 of 58	This page has been modified to include a reopening clause in Part I.C.7 allowing the permit to be modified in the event that revisions are made to the variance by the Water Pollution Control Board during the next revision of water quality standards or by EPA upon review of the variance.
Pages 14 and 15 of 58	These pages have been modified to replace the schedule of compliance for chloride WQBELs with a schedule of compliance for the chloride variance as Part I.E.
Pages 20a through 20c	These pages have been added to the permit as Part I.G to incorporate the chloride PMPP.

### **Expiration Date**

The expiration date of the permit has not changed. The permit, as modified, will expire at midnight on October 31, 2014.

Drafted by: Bill Stenner  
December 20, 2011

## **PUBLIC HEARING COMMENTS AND IDEM'S RESPONSE TO COMMENTS PUBLIC HEARING NOTICE NO. 2010-9A-PH/AV OCTOBER 5, 2010**

The following is a summary of the oral comments received at the October 5, 2010 Public Hearing addressing the City of Angola Chloride Variance application, followed by responses by IDEM. These represent the only comments received during the notice periods for the variance application.

### **Mrs. Christine Mays:**

Question/comment: Is the proposed variance and variance-based limit on chloride open-ended or is there a time limit?

Response: The variance and associated limits are in effect for the term of the NPDES permit (IC 13-14-8-9). The variance must be renewed with each renewal of the NPDES permit (IC 13-14-8-9, 327 IAC 5-3-4.1(k)).

### **Mr. Jerry Mays:**

Question/comment: Who measures chloride concentrations discharged from the City of Angola's combined sewer overflows (CSOs)?

Response: The City's two CSOs are regulated in NPDES Permit No. IN0021296 under their CSO Long Term Control Plan (LTCP). There are currently no monitoring requirements for chloride from the City's two CSOs.

Question/comment: If a part of the chloride variance under consideration is using reclaimed salt to deice roads, then the chloride is being recycled and not removed from the wastestream.

Response: In its presentation at the public hearing, the City of Angola mentioned the possibility of the recycling of brine recovered from the water softening process at the water treatment plants. In such a case, one option would be to reuse the brine as road salt in place of the commercial road salt currently purchased by the City. Regardless of whether the City uses recycled brine or commercial salt to deice roads, the impact would be a reduction of chloride discharged from the water treatment plant(s) to the wastewater treatment plant.

Question/comment: One option proposed by the City is to bypass Mud Creek and discharge directly to Pigeon Creek. This option only transfers the problem rather than solving it.

Response: The variance procedures in 327 IAC 5-3-4.1(b)(2)(A) require an identification of all potential control methodologies, regardless of whether the methodology is considered to be technically feasible or not. The City provided this option in their variance application as required by rule and identified the option as not technically feasible, which removes it from consideration in IDEM's variance determination.

Question/comment: A 2000 study was mentioned during the City's presentation at the Public Hearing. Have there been subsequent studies with updated data?

Response: IDEM's Office of Water Quality conducted a Source Identification study for Mud Creek in 2006, which included in-stream sampling for chloride in H.D. Wood Ditch, Mud Creek and Pigeon Creek.

Question/comment: What would the criteria be for IDEM to not grant a variance?

Response: IDEM first determines whether the applicant has complied with the applicable variance submittal deadlines (327 IAC 5-3-4.1(b)(1)), and meets all state and federal applicability criteria (327 IAC 2-1.5-17(a), 40 CFR 132, Appendix F, Procedure 2.A). IDEM cannot grant a variance if any of these requirements have not been met. Additionally, IDEM cannot grant a variance that would result in implementation of a control methodology that is less effective than the method currently employed (327 IAC 5-3-4.1(e)(6)), or that would likely jeopardize the continued existence of any endangered or threatened species listed under Section 4 of the Endangered Species Act or result in the destruction or adverse modification of such species critical habitat (327 IAC 2-1.5-17(a)(1)).

Question/comment: How can citizens keep track of where IDEM is in the variance process?

Response: IDEM is public noticing the tentative determination on the variance in accordance with the procedures of 327 IAC 5-3-12. The tentative determination is addressed in the draft modification of NPDES Permit No. IN0021296. All persons on the list of interested parties will receive notification of the tentative determination.

**Mr. Lynn Johnson:**

Question/comment: Who is responsible for establishing the timetable addressing actions required by the City of Angola under the variance, if approved?

Response: IDEM is ultimately responsible for determining appropriate schedules for actions under the variance. A schedule of compliance for the chloride variance has been incorporated into Part I.E. of the permit modification that incorporates the variance.

Question/comment: Since the water softening operations at the water treatment plants is the source of half of the amount of chloride discharged from the wastewater treatment plant (WWTP), can IDEM require the City of Angola to discontinue water softening operations?

Response: Subsequent to the Public Hearing, IDEM requested and received information from the City of Angola regarding the elimination of water softening at the City's two water treatment plants. The City uses groundwater as the source of its drinking water supply. According to the City of Angola, the average hardness of groundwater in the City's drinking water wells is 22.75 grains per gallon, or 389 ppm. The U.S. Department of Interior and the Water Quality Association classify any level of water hardness above 10.5 grains per gallon, or 180 ppm, as "very hard". If the City discontinues the practice of water softening at its two water treatment plants, the concern is that a significant increase in residential water softening would occur. Additionally, commercial establishments and industrial facilities discharging to the City of Angola WWTP may find it necessary to initiate or increase the practice of water softening. Therefore, the elimination of water softening at the City's two water treatment plants would not likely result in a significant decrease in the amount of chloride discharged to the WWTP.

Question/comment: Since Angola has asked for a variance to raise the standards for chloride, can IDEM consider lowering the standards at the same time so this variance could be taken away or not be automatic?

Response: IDEM established the water quality-based effluent limitations (WQBELs) for chloride for the City of Angola WWTP in accordance with the procedures established in 327 IAC 2-1.5. As the WQBELs are based on the lowest possible  $Q_{7,10}$  low flow value (0 cfs), it is unlikely that the chloride WQBELs could be lowered.

Question/comment: During WWII, the U.S. Navy was able to desalinate water for the 7<sup>th</sup> Fleet. Submarines couldn't store drinking water, but the technology was available to desalinate water to provide a drinking water supply. Has the City of Angola given full consideration to a similar method of treatment?

Response: Distillation (evaporation) is the common process utilized in submarines to provide a potable water source. Distillation of water to remove chloride requires a heat source to vaporize the water, creating potable water from the resulting condensate. Subsequent to the Public Hearing, IDEM requested information from the City of Angola on the costs of distillation. The City estimated capital costs for an evaporation system to be \$500,000. The annual operating costs, primarily energy costs for a heat source and cost of disposal of the concentrated softener water, are estimated to exceed \$2,000,000. When translated to a monthly cost per customer, the high annual operating costs make distillation costlier than all of the control methodologies provided in the City of Angola's variance application.

A submarine has a readily available heat source (engine exhaust) and distills a significantly smaller volume of water (when compared to the volume of softener water at the City of Angola's two water treatment plants), making it a viable process for producing fresh water on a submarine.

**Mr. Jerome Frye:**

Question/comment: There have been 50 to 60 years of CSOs from the City of Angola WWTP collection system and IDEM has given the City a temporary permit to have CSOs. The CSO issue has yet to be corrected, and the problem will continue to grow as the city grows. Now the City has the opportunity to perform repairs on the WWTP collection system.

Response: As a part of the City of Angola's Long Term Control Plan (LTCP), measures have been implemented by the City of Angola to the WWTP collection system that have resulted in dramatic reductions in the number and volume of overflows that have occurred in the past ten years. Based on the mass balance of significant sources of chloride to the WWTP included in the City of Angola's variance application, repairs to the WWTP collection system are not expected to have a significant impact on the levels of chloride discharged to H. D. Woods Ditch.

**Mr. Kenny Frye:**

Question/comment: There have been four studies done through the soil and conservation district costing approximately \$500,000 over the past 50 years. The studies recommend that numerous things be done by the City of Angola, including wetlands, retention ponds, etc. These recommendations have never been implemented.

Response: The Steuben County Soil and Water Conservation District developed a Watershed Management Plan for the Pigeon Creek Watershed in 2006 that included several recommended measures for improvement of the Pigeon Creek watershed. Table 30 on Page 116 of the Watershed Management Plan identifies the measures and corresponding responsible agencies.

Of the 23 recommended measures identified in the plan, the City of Angola is identified as one of the responsible agencies for three of the measures. The City of Angola is not identified as a responsible agency for either wetland/habitat restoration or sedimentation basins. Any failure to implement measures of the Management Plan do not appear to be the fault of the City of Angola.

Question/comment: In 1998, the ecology class from the Merry Lea Environmental Center did a study on the aquatic life in the streams in Kendallville, Indiana. The study determined that aquatic life was dying due to the chloride discharged from the Kendallville WWTP. The City of Kendallville quit softening the water to get themselves into the guidelines.

Response: As previously stated, if the City discontinues the practice of water softening at its two water treatment plants, the concern is that a significant increase in residential water softening would occur. Additionally, commercial establishments and industrial facilities discharging to the City of Angola WWTP may find it necessary to initiate or increase the practice of water softening. Therefore, in the long term, the elimination of water softening at the City's two water treatment plants would not likely result in a significant decrease in the amount of chloride discharged to the WWTP.

It should be noted that according to the City of Kendallville, the determination to discontinue the practice of water softening at its water treatment plant was made solely for financial reasons. The City of Kendallville was under no enforcement action from IDEM requiring them to discontinue the practice of water softening at the City's water treatment plant.

Question/comment: Angola is putting approximately 1,600 tons of salt or chloride per year into the creeks. They say the salt doesn't stay in the water. It does. There is also road salt from the City that goes into the creeks and into Long Lake.

Response: The estimated annual quantity of chloride discharged from the WWTP, as provided by the City of Angola in their variance application, is 1,169 tons per year. In their mass balance of significant sources of chloride from the application, the City of Angola estimated that 1.4% of the chloride source is attributed to deicing runoff in combined sewers. The variance incorporated into the draft permit modification requires the City of Angola to develop and implement a chloride pollutant minimization program plan that addresses reductions of chloride to the WWTP, including from non-point sources such as runoff from road deicing practices.

Question/comment: According to a study by the USGS at the University of Vermont, it was found that chloride levels do not dissipate over time. Chloride levels remain in lakes and accumulate year after year.

Response: As chloride is a soluble substance that dissolves in water, it does not settle out in a water body. The chloride concentrations in H. D. Wood Ditch, Mud Creek, Pigeon Creek and ultimately Long Lake are affected, in part, by the day-to-day chloride concentration in the wastewater discharged from the City of Angola WWTP. The variance incorporated into the draft permit modification requires the City of Angola to develop and implement a chloride pollutant minimization program plan that addresses reductions of chloride to the WWTP.

Question/comment: The chloride affects not only aquatic life, but plants as well. It goes into the density of the lake and changes the density of the water so the oxygenation in the water doesn't stay. In 2001 Canada declared chloride to be a toxic substance in their Environmental Protection Act.

Response: The surface water quality criteria for chloride in 327 IAC 2-1.5-8(b)(3) was established to ensure that chloride is not discharged in amounts sufficient to be acutely toxic to, or to otherwise severely injure or kill, aquatic life, other animals, plants, or humans. The criterion continuous concentration (CCC) for chloride, an estimate of the highest concentration of a material in the water column to which an aquatic community can be exposed indefinitely without resulting in an unacceptable effect, is 230 mg/l. Instream monitoring data performed by IDEM from 2006 to 2007 shows chloride concentrations in Pigeon Creek (downstream of its confluence with Mud Creek) ranging from 89.2 mg/l to 120 mg/l, which are below the CCC of 230 mg/l. The referenced data indicates that chloride concentrations from Pigeon Creek to Long Lake comply with state water quality criteria.

The effects of road salts on aquatic organisms led to the inclusion of "road salts" on the second Priority Substances List under the Canadian Environmental Protection Act. This action was intended to promote the development and implementation of control measures to reduce the impact of road salts on the environment. As part of the City of Angola's variance, the chloride pollutant minimization program plan will require the City of Angola to address road deicing practices, ensuring that BMPs are in place to minimize chloride from road salt usage from reaching state waters.

Question/comment: With regard to impacts to aquatic, community, wildlife, plant life, Angola states they have identified no rare or threatened species. According to Ron Hellmich of the IDNR, as far as he knows, no study has been done on that portion of the river or creek. It appears that no rare or threatened species have been identified because no one has looked.

Response: The Indiana Department of Natural Resources (IDNR) utilized the Indiana Natural Heritage Data Center for their review of endangered and threatened species and significant areas. The IDNR acknowledges that the Indiana Natural Heritage Data Center relies on the observations of many individuals for their data, and, in most cases, the information is not the result of comprehensive field surveys at particular sites.

Question/comment: A 1990's study by Ball State University was conducted upstream and downstream of the City of Angola WWTP. The study found that upstream of the WWTP there were mussels and a diverse fish species, with 72 different fish collected. Downstream of the WWTP they were almost completely gone, and only 12 kinds of fish were found in the same amount of distance.

Response: Based on a 2007 Source Identification program by IDEM's Assessment Branch, H.D. Wood Ditch and Mud Creek were placed on IDEM's 303(d) listing for chloride. The variance incorporated into the draft permit modification requires the City of Angola to develop and implement a pollutant minimization program plan that addresses reductions of chloride discharged from the WWTP.

Question/comment: The City of Angola is requesting, as part of their variance, that the limits for chloride be removed from their permit. If they don't get the variance, that is doing the same thing.

Response: The City of Angola requested the removal of mass limits for chloride (the City did not request the removal of concentration limits). The City identified effluent dilution as a control methodology in their variance application which would potentially reduce chloride effluent concentrations from the WWTP to levels that would comply with the concentration limits. However, the methodology would not affect the mass limits for chloride. As IDEM had discussed with the City prior to their submittal of the variance application, 327 IAC 5-2-11.6(g) prevents the removal of the mass limits for chloride from the NPDES permit. For that reason, the City of Angola identified effluent dilution as an unfeasible control methodology, which removes it from consideration in IDEM's variance determination.

Question/comment: Many of the proposed methodologies in the City of Angola's variance application are to dilute the wastewater, which, to my understanding, is prohibited by state and federal law.

Response: It is important to distinguish between the control methodologies that are determined to be not technically feasible under 327 IAC 5-3-4.1(b)(2)(A)(ii), and the remaining control methodologies that have been identified as feasible control methodologies. IDEM only considers feasible control methodologies in its variance determination. The City of Angola identified side stream treatment and pollutant minimization as the only two feasible control methodologies, neither of which rely on effluent dilution to achieve reductions in chloride.

Question/comment: The people at Long Lake and along the river want the pollution to stop. That means Angola finally has to spend some money on the treatment plant or somewhere else.

Response: The City of Angola's variance application is specific to chloride. The variance regulations at 327 IAC 5-3-4.1 require the City of Angola to implement the highest ranking methodology that does not cause an undue hardship or burden. IDEM has determined that the highest ranking methodology meeting this criteria is a chloride pollutant minimization program plan which has been incorporated into the City's NPDES permit.

Question/comment: The variance will allow the City of Angola to continue to discharge 800 mg/l of chloride until the permit expires. The City will then be able to renew the variance in five years.

Response: The variance includes interim limitations for chloride representing the level currently achievable, prior to implementation of the chloride Pollutant minimization program plan. The interim limitations for chloride are 1,089 mg/l as a daily maximum and 792 mg/l as a monthly average. The permit modification also includes the variance limitations for chloride, representing maximum amount of progress of chloride reduction feasible during the initial term of the variance. The variance limitations for chloride are 1,056 mg/l as a daily maximum and 768 mg/l as a monthly average and become effective 24 months from the effective date of the permit. In the event that the variance is renewed, the variance limitations will become the new interim limitations and the new variance limitations will be calculated to reflect the maximum amount of progress of chloride reduction IDEM determines feasible during the second term of the variance.

Question/comment: In the City's presentation, the cost of reverse osmosis was approximately \$30 per month. The variance application, however, identifies the costs of reverse osmosis at less than \$20 per month.

Response: The variance application identifies two separate control methodologies utilizing reverse osmosis (in conjunction with deep well injection of the softener waste). One methodology addresses treatment of the water softener waste from the City's two water treatment plants with reverse osmosis. The City projected the cost for this methodology, with the corresponding deep well injection, at \$20.11 per user per month (the City has noted that this methodology alone is not sufficient to achieve compliance with the chloride WQBELs). The second methodology addresses treatment of the effluent from the WWTP with reverse osmosis. The City projected the cost for this methodology, with the corresponding deep well injection, at \$31.50 per user per month.

Question/comment: H.D. Woods Ditch is the main source of runoff for the City and multiple areas of U.S. 20 and the chloride from these roads. Is this fact being taken into consideration in the variance process?

Response: As part of the chloride Pollutant minimization program plan, the City of Angola will be required to review road deicing practices and ensure that Best Management Practices are in place to minimize road salt runoff to the WWTP. It is important to note that portions of road that may flow into the City's collection system receive salt applications from other agencies (Indiana Department of Transportation, County Highway, etc.) over which the City has no control.

Question/comment: Can IDEM require someone to sample sediment in Long Lake for salt?

Response: Measurements of instream chloride concentrations demonstrate that Pigeon Creek, the water body flowing to Long Lake, are below the water quality criteria for chloride.

Furthermore, chloride is a soluble substance that dissolves in water, and is not amenable to settling (sedimentation), even when water flow velocities decrease substantially (i.e., upon entering a lake). The variance proposed by IDEM does not require the City of Angola to sample Long Lake sediment for chloride.

**Ms. Ann Johnson:**

Question/comment: Does the variance add time on to the five year permit term or is it within the 5 years?

Response: The variance will remain in effect until the permit expires under IC 13-14-8-9. Pursuant to IC 13-14-8-9(c), when the SMV is incorporated into a permit extended under IC 13-15-3-6 (administratively extended), the SMV will remain in effect until the permit expires. The NPDES permit for the City of Angola WWTP expires October 31, 2014.

Question/comment: What is the deadline for compliance?

Response: The City of Angola will be required to comply with the interim limitations for chloride immediately upon the effective date of the permit modification incorporating the variance. The City will be required to comply with the variance limitations for chloride 24 months from the effective date of the permit modification incorporating the variance. Additionally, a schedule of compliance for the chloride variance (including the Pollutant Minimization Plan) has been incorporated into Part I.E. of the permit modification

**Mr. Rick Wells:**

Question/comment: Why is IDEM considering a variance allowing the City of Angola WWTP to add more salt to the discharge that is going to settle?

Response: The variance application submitted by the City of Angola does not propose to increase the level of chloride currently being discharged. 327 IAC 5-3-4.1(e)(6) prohibits the granting of a variance that would approve a methodology with less overall effectiveness than the methodology currently implemented. The variance includes Pollutant minimization program plan requirements addressing chloride source identification and reduction. Additionally, the variance includes interim limitations for chloride that represent the level currently achievable and variance limitations for chloride that represent the maximum amount of progress of chloride reduction feasible during the term of the variance.

**Ms. Shirley Shumaker:**

Question/comment: What would happen if IDEM denied the variance request?

Response: If IDEM had determined not to grant a variance, Angola would have been required to comply with the water quality-based effluent limitations for chloride by November 1, 2014.

**Mr. Cleon Shumaker:**

Question/comment: If the high concentrations of chloride in Mud Creek don't settle out, where does it go?

Response: As chloride is a soluble substance that dissolves in water, it does not settle out in a water body. The chloride concentrations in H. D. Wood Ditch, Mud Creek, Pigeon Creek and ultimately Long Lake are affected, in part, by the day-to-day chloride concentration in the wastewater discharged from the City of Angola WWTP. The variance incorporated into the draft permit modification requires the City of Angola to develop and implement a chloride Pollutant Minimization Plan that addresses reductions of chloride to the WWTP.

**Ms. Joyce Brames:**

Question/comment: What is the timeframe for IDEM making a determination on the variance?

Response: The draft permit incorporates IDEM's tentative determination on the variance (327 IAC 5-3-4.1(f)). The tentative determination has been public noticed with a 30 day comment period. After consideration of any comments received from the applicant, the public and/or the U.S. EPA, IDEM will make a final determination on the variance within 90 days of the expiration of the comment period, public hearing, or receipt of additional information (327 IAC 5-3-4.1(h)).